








# Work Order ID 53706

November 13, 2009 8:15:14 AM




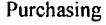
Page 1

Item ID: D6104-005 Accept  Setup Start   
Revision ID: B Stop   
Item Name: Round Billet, 17-4  
Start Date: 11/13/09 Start Qty: 10.00  Cust Item ID:  
Required Date: 11/13/09 Req'd Qty: 10.00  Customer:  
Reference:



Approvals: Process Plan: CL Date: 09/11/13 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start   
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop 

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------



Draw Nbr	Revision Nbr
D6104	Rev B

100  PURCHASING 0.00  
 Purchasing Memo 0.00  
Purchasing Issue P/O: 10749 (a)Description: S.S round billet (b) Ø4.00" x 5.10" long (c) Tolerance on all dimensions are +0.030"/-0.000" (d) Material: 17-4PH Stainless steel (Ams 5643-or Aisi 630) (e)One blank makes 2 parts (f) Material certification required.

CL 09/11/13 10

110  Receive & Inspect for Damage & Mat'l Certs 0.00  
 Packaging Memo 0.00  
Packaging Ensure material certification is attached

CL 9/11/20 (W)

120  QC6- Inspect dimensions to drawing 0.00  
 QC Memo 0.00  
Quality Control Ensure Material certification comply to Dwg D6104

ant odul26

10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

• **NOTE:** Date & initial all entries

# Work Order ID 53706

November 13, 2009 8:15:14 AM



Page 2

Item ID: D6104-005

Accept



Setup Start



Revision ID: B

Stop



Item Name: Round Billet, 17-4

Start Date: 11/13/09 Start Qty: 10.00



Cust Item ID:

Required Date: 11/13/09 Req'd Qty: 10.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

130

Identify as per dwg & Stock Location: *MAT*

0.00

*OK 06/12/06*

*10*



Packaging

Memo

0.00

Packaging

140

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

*09/11/06*

*PL 09-11-24*  
*10*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

# Picklist Print

November 13, 2009 8:15:14 AM

Page 1

Work Order ID: 53706

Parent Item: D6104-005RevB

Parent Item Name: Round Billet, 17-4



Comments:

Start Date: 11/13/09

Required Date: 11/13/09

Start Qty: 10.00

Required Qty: 10.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6104-005PRevB  17-4 SS Roundbar 4.00"OD		Purchased	No			110	Each	0.0000	10.0000 		11/14/09	OK

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

• **NOTE:** Date & initial all entries

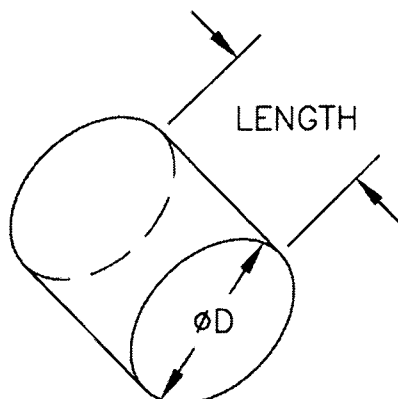


DESIGN E F	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29

## SPECIFICATION CONTROL DRAWING



W10: 53706  
C209/11/13

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

Copyright © 2001 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

**Castle Metals®**

A. M. Castle &amp; Co.

**PACKING SLIP**

Page 1 of 1

Pack Slip No:7521352

<b>Ship From:</b> Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		<b>Sold To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		<b>Ship To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		<b>Deliver To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
<b>Date Shipped</b> 19-NOV-09	<b>F.O.B.</b> ORIGIN	<b>Freight Terms</b> Prepaid		<b>Carrier</b> MANITOULIN	<b>BOL No</b> 130776-2		<b>Delivery No</b> 7521352

<b>Shipment Details</b>	<b>Final Destination Branch - MON</b>
-------------------------	---------------------------------------

<b>Order No</b> 413216	<b>Line No</b> 1	<b>Item No</b> 42464.MO	<b>Description</b> 4.0000.BD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN ( + .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AISI 630,AMS 5643,ASME SA564,ASTM A564,UNS S17400				
<b>Purchase Order No</b> 10749		<b>Part Number</b> YOUR ITEM NUMBER: D6104-005		<b>Ordered Qty</b> 10 PCS	<b>Invoice Qty</b> 10 PCS	<b>Backorder Qty</b>	
<b>Details</b>							
<b>Mill</b> MILL	<b>Heat Number</b> 422465	<b>Mech Id</b> 0042	<b>PCS</b> 10	<b>Width (IN)</b>	<b>Length (IN)</b>	<b>Shipped Qty (LBS)</b> 187.29	

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

This material has been received and inspected by:	Date:
---	-------

*amc 09/11/26*



**VALBRUNA****SLATER STAINLESS, INC.**
 2400 Taylor Street West, P.O. Box 830  
 Fort Wayne, Indiana USA 46801  
 Phone: 260-434-2882 Fax: 260-434-2905
**Product Certification Report****Report Number: 4469610****Certified on Sep 04, 2009 Page 1**

Order I.D. <b>0900987 001</b>		Order Date <b>6/16/09</b>		Commodity Code <b>42464</b>	
Dim 1 <b>4.0000</b>	Dim 2 <b>.0000</b>	Dim 3 <b>.0000</b>	Heat I.D. <b>422465</b>	Customer I.D. <b>001123</b>	Customer Purchase Order <b>01-21642</b>
Product Shape <b>Rounds</b>			Product Surface <b>HR &amp; Rough Turned</b>		Customer Grade <b>17-4</b>
Length (Inches) <b>132.000 Min. 156.000 Max.</b>			Bill of Lading # <b>410597</b>	Weight	

**Ship To**
**CASTLE METALS**  
**3400 NORTH WOLF ROAD**  
**FRANKLIN PARK, IL 60131**
**Sold To**
**VALBRUNA STAINLESS, INC.**  
**2400 TAYLOR STREET WEST**  
**FORT WAYNE, IN 46802**
**Lift #: 0042****AISI 630****CONDITION A****3174-10 Rev 4 DTD 08/27****UNS S17400****ASTMA 564-04****ASMESA 564 01 ED 2002 A****AMS 2303E****AMS 5643R (except finish)****CHEMICAL ANALYSIS**

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	C
.032	.58	.021	.025	.32	15.57	4.81	.19	3.32	.04	.19	.001	

**HBW****355****TENSILE PROPERTIES****CAPABILITY**

Cap HB	TS (PSI)	.2%YS (PSI)	%EL(4d)	%RA	AGE(F)
428	204000	180100	16.7	53.9	900

**MAGNETIC PARTICLE TEST****FREQ SEV****AVG .10 .22****PRODUCTION HEAT TREATMENT**

SOL-ANN(F)	SOL-ANN(HR)	QUENCH
1900	7.50	Air

**MACRO ASTM E340/E381****MACRO****OK****OK****PERCENT FERRITE****% FERRITE****AVG .8****Reduction ratio 5 To 1 Min.****Electric Furnace melted; AOD refined.****Ultrasonic test OK.**

Chemical testing performed to one or several of the following ASTM methods: E415, E572, E1019, E109  
 No mercury or low melting alloy contamination. No weld repair.

**Material melted in Italy, manufactured in the United States.****Material conforms to listed specifications and is DFARS compliant.****Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1.**

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of  
 Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony  
 under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for haz  
 I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

81 14 4920 00N

Dennis Hackett

Wd6E:Z1 600Z '6 0

**VALBRUNA****SLATER STAINLESS, INC.**

2400 Taylor Street West, P.O. Box 630

Fort Wayne, Indiana USA 46801

Phone: 280-434-2892 Fax: 280-434-2806

**Product Certification Report****Report Number: 4469610**

Certified on Sep 04, 2009 Page 2 of 1

Order I.D. 0900987 001		Order Date 6/16/09		Commodity Code 42464	
Dim 1 4.0000	Dim 2 .0000	Dim 3 .0000	Heat I.D. 422465	Customer I.D. 001123	Customer Purchase Order 01-21642
Product Shape Rounds			Product Surface HR & Rough Turned		Customer Grade 17-4
Length (Inches) 132.000 Min. 156.000 Max.			Bill of Lading # 410597	Weight	

**Ship  
To**
**CASTLE METALS**  
 3400 NORTH WOLF ROAD  
 FRANKLIN PARK, IL 60131
**Sold  
To**
**VALBRUNA STAINLESS, INC.**  
 2400 TAYLOR STREET WEST  
 FORT WAYNE, IN 46802

*mk 09/11/24*

**Castle Metals FP**

HEAT NUMBER 422465

MECHANICAL ID \_\_\_\_\_

ITEM CODE 42464

LOT NUMBER \_\_\_\_\_

PO NUMBER 19293

RECEIPT DATE 9-14-09

SUPPLIER Valbruna

SPECIFICATION \_\_\_\_\_

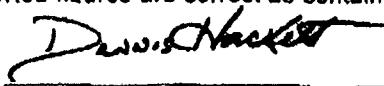
LCS N

COMMENT \_\_\_\_\_

APPROVED BT

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valb Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

  
 Dennis Hackett

NO. 0254 P. 14

Sep. 9. 2009 12:39PM